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An Examination of Earnings Benchmarks: Evidence from Japan

著者	Liang Liang
学位授与機関	Tohoku University
学位授与番号	11301甲第15975号
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An Examination of Earnings Benchmarks: Evidence from Japan

By

Liang Liang

Supervisor: Prof. Toshifumi Takada

Vice-Supervisor: Prof. Fumihiko Kimura

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Contents

Abstract

The prior studies suggest that there are three kinds of earnings thresholds; first is to report a profit; second is to report an increasing in profit, and third is to meet analysts' forecasts. By empirical studies, this paper corroborates evidence that the former two kinds of earnings benchmarks (avoidance of losses and earnings decreases) are also common existing in the Japanese market. As to the second kind of benchmarks, avoiding earnings decrease, are still existing but not such significant as ten years ago. The study on the third benchmark is based on the specific Japanese forecasting data. Japanese market has the unique forecasting system not as other countries. It is easy and convenient to be acquired, so the public treats the managers' forecasting more seriously than analysts forecasting. I focus on the managers' forecasting as the third kind of earnings benchmarks. The result shows that the distributions of earnings surprises contain an unusual high frequency of zero and small positive surprises. By examining the realization of managers' forecasting, I concern on the meeting forecasting and beating forecasting separately. The findings suggest firms prefer slight forecasts exceeding to just meeting. Comparing with the slightly negative earnings surprise firms, firms with small positive earnings surprise have significant higher discretionary accruals. I also do estimation with the realization of annual report and semi-annual report; the results show that firms concern more on realization of managers' forecasting in annual report than in semi-annual report. Additional, I

investigate the real activities manipulation of the suspected firm also; the results do not significantly show a difference for the firms with slight earnings surprise on the using of real earnings management compared with the firms just missing the managers' furcating. However, based on the firm-level full sample, I find the two ways earnings management: accruals-based earnings management and real earnings management are substitutive.

Key words: earnings benchmarks; earnings management; avoidance of earnings decreases and losses; managers' forecasting; accrual-based earnings management; real earnings management

1 Introduction

1.1 Background of the topic

Earnings, as a central role of financial report, are always considered as a measurment of the enterprise's financial performance. Financial reporting should provide information about an enterprise's financial performance during a period. There are lots of literatures present substantial evidences that managers try to manipulate accruals through accounting choices and estimates (Schipper, 1989; Healy and Wahlen, 1999; Dechow and Skinner, 2000; Fields et al., 2001; Beneish, 2001; Habib, 2007). As earnings management research, Schipper (1989) defines earnings management as:

A purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain (as opposed to, say, merely facilitation the neutral operation of the process). Earnings an earnings growth are key components in determining firm value. To the extent that earnings management artificially increases earnings and earnings growth expectations, earnings management can ultimately inflate firm value in order to sustain overvalued equity (Dechow et al. 2000). Frequently, managers emphasize the importance of increases in earnings in the opening lines of the management discussion section of the annual report.

The existence of earnings management explains the abnormal earnings distribution. There are many headlines and articles in the financial press focusing on these issues.

As the prior evidence concluded by the literatures, there are three benchmarks of earnings distributions. That the hierarchy of thresholds is first to report a profit, second to report an increase in profit, and third to meet analysts' forecasts (Degeorge et al. 1999). The empirical studies document the strong incentives of listed firms to avoid earnings decreases and losses. The managers usually report consistently increases in the annual report and try their best to maintain consistent increases. Hayn (1995) documents that there is a "kink" in the earnings distribution: too few firms report small losses and too many firms report small profits. The regularity compelling empirical evidence by Burgstahler and Dichev (1997) provides the evidence that firms manage reported earnings to avoid earnings decreases and losses. Burgstahler and Dichev (1997) provide compelling empirical evidence that earnings decreases and losses are frequently managed away. Dechow et al. (2003) provide a multitude of tests examining the power of the model to try to explain the kink in the earnings distribution. In US, as the analyst forecasting's accuracy of earnings is increasing, and the public tends to pay more attention on the analyst forecasting; in the middle of 1990s, the analyst forecasting instead of the former two kinds of earnings benchmarks, is becoming the most important threshold of earnings (Brown et al. 2005). If the firms achieve to realize positive earnings surprise, the stock price increases immediately. Otherwise, the stock price declines significantly.

1.2 Method of earnings management

As the method of earnings management, the prior literature present evidences that

managers take advantage of the accounting discretion in GAAP to manipulate accruals through accounting choices and estimates, which is been seen as the accrual-based earnings management. Generally speaking, the researches on accrual-based earnings management usually assume that the earnings management only effects on the accruals in specific period by changing the accounting methods, hardly has influence on operating cash flow. That is the manipulation of accruals occurs in this period will be smoothed soon or later in the future fiscal period. For example, changing the depreciation method for fixed assets and the estimate for provision for doubtful accounts can bias reported earnings in a particular direction. The studies on accruals based earnings management use discretionary accruals to test the manipulation of earnings, that widespread during previous decades. There are many research examines the specification and power of detecting discretionary accruals. Jones and modified Jones models are wildly used in former studies as the approach to examine discretionary accruals; in 2005, considering the firms with extreme performance are also likely to engage in earnings management, Kothari et al. conduct the performance matched discretionary accrual measures as a new measurement to detect earnings management. Although, the performance matching cannot solve all the problems arising by the conventional discretionary accrual models, the ROA is considered as an additional controls on estimated discretionary accruals systematically, and more specified and powerful at estimating discretionary accruals. Dechow et al. 2012 provides a new approach to test for accrual-based earnings management. The approach exploits the inherent property of accrual accounting that

any accrual-based earnings management in one period must reverse in another period. If the researcher has priors concerning the timing of the reversal, incorporating these priors can significantly improve the power and specification of tests for earnings management. Since earnings are the sum of accruals and operating cash flow, earnings can be manipulated through not only accruals but also operating cash flow. In fact, the studies focus on real earnings management grows rapidly in recent years. Not as accrual-based earnings management, the real earnings management is that the managers exploit business activities to alter reported earnings by adjusting the timing and scale. It is defined by Ewert and Wagenhofer (2005) as the changes of the timing or structuring of real business transactions to alter earnings, implying that the changes of real transactions deviate from the optimal plan of actions and thus impose a real cost to the firm. Roychowdhury (2006) defines real earnings management as "departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations. In other words, the managers could use real activities manipulation and accruals-based earnings management as substitutes in managing earnings.

1.3 Research ideas and structure

1.3.1 Research ideas

The motivation and purpose of this paper is to figure out the situation of earnings benchmarks recently in Japan. Specifically, the managers' forecasting data with a

considerably long history is the unique mandatory disclosure forecasting data in the world. It is rare to consider this forecasting as the third earnings benchmarks, which makes the topic with a certain novelty. Then, focusing on the realization of managers' forecasting and detailed into the method of realization of forecasting also made the paper relatively novel. First, consistent with previous research, I use the same definition about the earnings benchmarks to show the distributions of change in earnings and earnings contain an anomalous high frequency of zero and small positive intervals and an anomalous low frequency of small negative intervals. Specifically, using the unique Japanese managers' forecasting (required by Japanese stock exchange mandatory) data, I provide distributions of meeting or beating managers' forecasting. It displays an unusually high frequency of zero and small positive earnings surprises also, like the analysts' forecasting in other countries. By examining the realization of managers' forecasting, I focus on the meeting forecasting and beating forecasting separately. The findings suggest that the firms prefer exceeding slightly forecasts than just meeting the earnings forecasting. Comparing with the slightly negative earnings surprise firms, the firms with small positive earnings surprise have significant higher discretionary accruals. Then I also estimate the realization of annual report and semi-annual/the third quarterly report; the results show that firms concern more on realization of managers' forecasting in annual report than in semi-annual report. According to the changes of discloser requirement, I examine the accuracy of managers' forecasting, and the results shows that after 2003, the requirement of quarterly earnings briefing, the difference between managers'

forecasting and actual earnings tends to subside. With respect to earnings management, I further investigate the real earnings management exclusively on the suspected firms, which with slight earnings surprise, to clarify if the firms also engaged in real earnings management to realize the forecasting. The result shows that, unlike accrual-based earnings management, the firms with small earnings surprise firstly employ the accrual approach to manipulate their earnings, but not the real earnings management, which is relatively costly. Although it was revealed in previous studies that accrual-based and real activities earnings management are substitutive, I find, on the firms with slight earnings surprise, say, the suspected firms, the negative correlation between accrual-based and real activities earnings management tends to be larger than the general firms. As we know, the negative correlation itself, between accrual-based and real activities earnings management, to some degree represents that there exists earning management in all firms sample. If in this case, I can suppose in the suspected firms, such negative correlation should be highlighted since these firms have higher incentive to do earnings management. Estimated results prove this assumption.

1.3.2 Result and contributions

This paper presents the distribution of earnings benchmarks of Japanese market. Moreover, the paper focuses on the third kinds of the earnings-managers' forecasting, which is unique in Japan. The results show that as the represent of the fist kind of earnings benchmark, the distribution of changes in net income shows discontinuity

around zero, which reflect the avoiding of earnings decreases. But comparing with the result based on prior studies, this benchmark is still existed but not so significant as before. As the second kind of earnings benchmarks, the net income represents the avoidance of losses. The result shows a single-peaked, bell-shaped distribution with an irregularity near zero, which is consistent with earnings management. Earnings losses, which just less than zero occur less frequently than would be expected given the smoothness of the remainder of the distribution. This irregularity phenomenon is also confirmed by the statistical tests. Mainly, the third earnings benchmarks in Japan, not as the same as other countries, is been seem as the forecasting given by managers themselves. The results focus on this part reveal the significant irregularity distribution as former two. With a close look of the result, I classify the firms' realization of managers' forecasting which just near the zero into three groups to clarify the earnings management among these groups. The firms with slight positive forecasting realization shows higher inclination to engage in earnings management than the group with small negative forecasting realization. Then, considering the method of earnings management, I also checked the earnings management by real activities. The result shows significant negative relationship between accruals based and real earnings management.

This paper provides the study on earnings benchmarks recently. The managers forecasting data, the unique forecasting data is treated as the third kinds of earnings benchmarks, also make the study much more interesting than the traditional definition of earnings benchmarks. Focusing on the realization of managers' forecasting, it is

also interesting to classify the firms near zero into three groups: the firms with slight positive earnings surprise, slight negative earnings surprise and zero earnings surprise. There are few research studies on the relationship between different methods of earnings management in Japan; this paper finds that the two methods of earnings management are substitutive with significant negative relationship.

1.3.3 Structure

The remainder of the paper is organized as follows:

Section 2 reviews the related research to clear the developing of this research issue.

Section 3, the research issues present the hypotheses, sample selection and the empirical regression model used to examine the relation between managers' earnings forecasting and discretionary accruals. Next, the real activities manipulation as the other strategy of earnings management is also been inspected.

Section 4 presents and discusses empirical results.

Section 5 concludes the implications of the findings and suggesting ideas for future research. This section firstly summarizes the conclusions, and based on the conclusions, I point out the future work needs to be conducted.

2 Literature

Previous studies support the avoidance of earnings decreases and avoidance of losses. Burgstahler and Dichev (1997) suggest that 8% to 12% of the firms with small pre-managed earnings decreases exercise discretion to report earnings increases. Similarly, 30% to 44% of the firms with slightly negative pre-manages earnings

exercise discretion to report positive earnings. Ke et al. (2002) investigate the validity of the earnings management explanation by examining the stream of earnings changes and the components of these changes for public vs. privately held bank holding companies (banks). They conclude that after controlling for potential differences between the operations of public and private banks, the public banks are significantly less likely than private banks to report small declines in earnings. Myers et al. (2007) provide evidence that earnings momentum-the tendency of firms to report several years of consecutive increases in quarterly EPS-is relatively commonplace, much more so than would be expected by chance. They interpret this as prima facie evidence of earnings management in the spirit of Burgstahler and Dichev (1997) and Degeorge et al. (1999). Degeorge et al. (1999) identify one additional earnings benchmark. They examine the relative importance of three quarterly earnings thresholds managers seek to achieve, and conclude that managers order their earnings thresholds as follows: (1) avoid quarterly losses; (2) avoid quarterly earnings decreases, and (3) avoid negative quarterly earnings surprises. They suggest that avoiding losses is the most important threshold to achieve based on their conditional analyses, but their unconditional results reveal that avoiding earnings decreases is the most important threshold. From their evidences, avoiding a negative earnings surprise is the least important threshold that robust to their use of both conditional and unconditional methodologies. Brown and Caylor (2005) find that this hierarchy has reversed in recent years (1996-2002). It means managers seek to avoid negative quarterly earnings surprises more than to avoid either quarterly losses or quarterly

earnings decreases. Barua et al. (2006) extend Brown (2001) by documenting that the differential propensity to achieve earnings benchmarks by profitable and non-profitable firms result from differential accruals management behavior. The finding is that firms with profits before accruals management are more likely than firms with losses before accruals management to have pre-managed earnings below both analysts' forecasts and prior period earnings and reported earnings above these benchmarks. Accruals represent a key aspect of mandatory reporting. Prior studies suggest that investors and financial analysts fail to fully understand the implications of accruals for future earnings (Sloan 1996; Bradshaw et al. 2001). Ota (2006) provides that meeting the managers' forecasting are significant relative to stock price than other variables. Gong et al. (2009) investigate the association between errors in management forecasts of sub sequent year earnings and current year accruals. In an uncertain operating environment, managers' assessments of their firms' business prospects are imperfect. They hypothesize that management earnings forecasts exhibit greater optimism (pessimism) when accruals are relatively high (low). The finding shows a positive association between management earnings forecast errors and accruals. Shuto (2010) provide that consistent with US evidences, there are the same three kinds of benchmarks in Japanese market. He reports the avoidance of earnings decreases and losses is also exist in Japanese market, and comparing with the US firms, the Japanese show higher inclination to avoid earnings decreases and losses. The firms both manipulate their earnings and managers' expectations to achieve earnings benchmarks. Prior studies have proposed various incentive-related factors

that could motivate managers to bias their earnings forecasts to inflate market earnings expectations (Frost 1997; Koch 2002; Rogers et al. 2006), deter potential industry entrants (Newman and Sansing 1993), facilitate security issuance (Frankel et al. 1995; Lang et al. 2000), improve trading profitability (Aboody and Kasznik 2000; Noe 1999; Rogers and Stocken 2005), or reduce expected legal costs (Skinner 1997; Baginski et al. 2002; Rogers and Stocken 2005). Despite these studies, little research has examined the relation between mandated reported managers' forecasting and accrual-based/real earnings management.

With considering the method of earnings management, the extensive research on earnings management largely focuses on accrual-based earnings management (Schipper, 1989; Healy and Wahlen, 1999; Fields et al. 2001). The literature investigate the manipulation of real transaction to distort earnings are less. The prevalence of real earnings management as a tool to manipulate earnings was not well understood until recently. Graham et al (2005) survey more than 400 executives and document. They found strong evidence the managers are willing to engage in real activities to manage reported earnings. In order to meet the earnings target, 80% of the surveyed executives would like to reduce expenditure on R&D and advertising. 55% said that they would like to postpone new project to meet an earnings target, even if such delay caused a small loss in firm value. Roychowdhury (2006) provide evidence suggesting that managers avoid reporting annual losses or missing analyst forecasts by manipulating sales, reducing discretionary expenditures, and overproducing inventory to decrease the cost of goods sold, all of which are deviations from

otherwise optimal operational decisions, with the intention of biasing earnings upward. The research starts to examine the consequence of real activities manipulation recently. Bhojral et al. (2009) documents that firms that beat analyst forecasts by using real an accrual earnings management have worse operating performance and stock market performance in the subsequent three years than firms that miss analyst forecasts without earnings management. Gunny (2010) finds that, not consistent with the result, the firms that just meet earnings benchmarks by using real earnings management have better operating performance in the subsequent three year than firms do not engage in real activities and miss or just meet earnings benchmarks. Some literatures examine the impact of the costs of accrual-based earnings management on the choice of earnings management strategies. Cohen et al. (2008) focus on one cost of accrual-based earnings management, that is, the passage of SOX. The results show that after the passage of SOX, accrual-based earnings management declines, but real earnings management manipulation increases. Cohen and Zarowin (2010) examine several costs of accrual-based earnings management using SEO firms as samples. They show that there is a positively related to the tendency to use real activities manipulation in the year of a SEO. Zang (2012) suggest that the managers trade off the two earnings management methods based on their relative costs and that managers adjust the level of adjust the level of accrual-based earnings management according to the level of real activities manipulation realized. He documents the findings consistent with managers using accrual-based earnings management and real activities manipulation as substitutes.

A few prior studies examine how managers use multiple accounting and operating measures to achieve one or more goals. Barton (2001) suggests that the two activities are used as substitutes, as evidence by the negative relation between the two after controlling for the desired level of earnings volatility. Pincus and Rajgopal (2002) find a similar negative relation, but only in the fourth quarter. Badertscher (2011) find that managers engage in accruals management in the early stages of overvalued before moving to real transactions management, in order to sustain their overvalued equity; and real activities in later years, non-GAAP earnings management as a last resort. There is few research investigate the firms use multiple strategies to achieve earnings benchmark in Japan.

3 Research issues

3.1 Introduction of earnings briefings

The paper details the third kinds of earnings benchmarks- managers' forecasting, which is mandatory reported for a long time of Japanese market. Because the prior studies based on other countries data have shown that the third earnings benchmark had preceded over former two benchmarks, became the most important earnings benchmark, the paper investigate the unique mangers' forecasting data to illustrate the specific Japanese benchmark. In Japan, not like other countries, a unique forecasting date is available disclosed by the managers themselves, which is called "earnings briefings" (決算短信 in Japanese). From 1974, required by the stock exchanges of Japan, the earnings briefings are asked to disclose accounting information and report

to the public. Earnings briefing as a unique policy of Japan, is lasting for such a long time that investors know well about it. Almost every listed firm's earnings briefing is available from the homepage of the firm. So as a kind of accounting information, it is so convenient to be obtained and plays an important role for investment decisions without any cost to be get. As a source of earnings disclosure, the earnings briefings not only contain the actual accounting information in the fiscal period, but also have the forecasting information of next period given by the managers. Different with other market, the managers' forecasting is mandatory published, not voluntary in Japan. Manager, as the insider, seems to be less information asymmetry and more familiar with the internal situation of the firm, so that the managers' forecasting should be more accurately than other forecasting given by analysts.

The earnings briefing has made some changes from publishing. Before 2003, there are annual earnings briefing and semi-annual earnings briefing. According to annual earnings briefing, it contains the forecasting data of the next semi-annual earnings and forecasting earnings at the end of next fiscal year also; semi-annual earnings briefing contains the forecasting information in the end of the fiscal year. Along with more inside information are required by the investors and market, the quarterly earnings briefings are asked publishing mandatory after 2003. It means, generally speaking, there are 4 earnings briefings in one year: the annual one and 3 quarterly briefings. In annual and 1st quarterly earnings briefing, managers' forecasting earnings at next semi-annual and next annual are reported. As for the 2nd and 3rd quarterly earnings briefings, only the end of fiscal years' earnings is required to be published. The

managers' forecasting of sales, ordinary income and net income are available in the earnings briefings. In addition, if the firms indeed there would be a divergence between accrual and forecasting earnings, the amended forecasting could be made in next earnings briefings, or publishing a notice about revisal earnings forecasting. There is an extent about amending the forecasting, as for sales, the firms could revise the forecasting from -5% to 5%; Ordinary income and net income could be modified from -10% to 15%. The picture shows the policy of reporting earnings briefings.

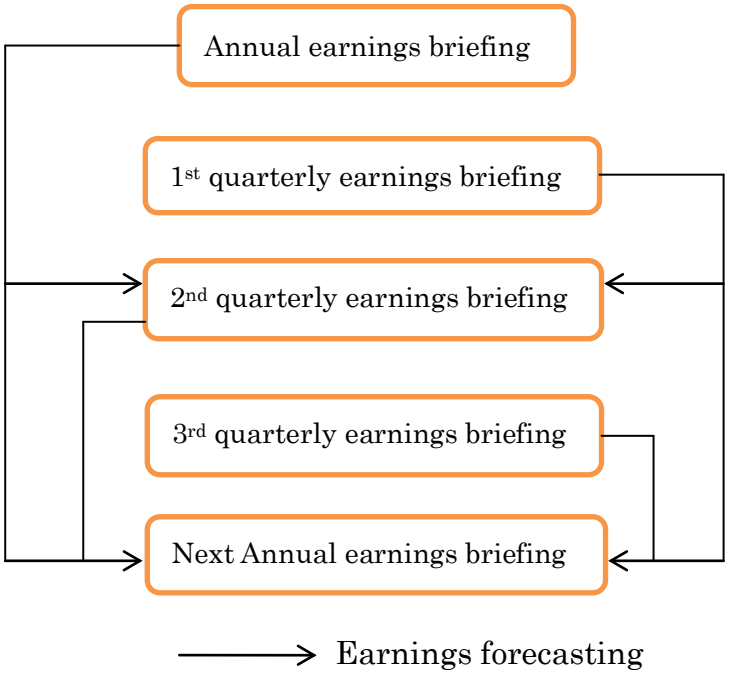


Figure 1. Manager's forecasting disclosure

3.2 Changes of earning briefing disclosure

After 2003, as the frequency of earnings briefing publishing was increasing from twice a year to four times a year, that is, the manger could revise their forecasting two more times than before in a certain range. I assume the managers' forecasting should

be much more accurate than before, since the forecasting disclosure in the third quarterly earnings briefing could be modified nearly in the end of the fiscal year. The regression followed is the test to examine if the forecasting data after 2003 is becoming more accurate comparing the actual data.

$$AbsFERRs=a0+a1*POST+e$$

AbsFERRs refers to the absolute value of earnings surprise, that equal to actual earnings minus forecasting value; and POST is a dummy variable equal to 1 if year after 2002 and equal to 0 if year before 2003. The slope coefficient from the regression shows the changes after passage of quarterly earnings briefing. Results with firm fixed effects are shown in the Table 1. Significant coefficient in POST is presented, suggesting my assumption is supported, that managers' forecasting becomes much more accurate after 2003 than before.

	AbsFERRs
intercept	0.011*** (38.75)
POST	-0.007*** (-22.75)
R^2	0.054
Obs.	10434

*** means significance at the 0.01 level.

3.3 Hypotheses development

The examination of earnings benchmarks are divided into two parts. The first part is to investigate that if the avoiding of earnings decreases and losses, which been treated as former two kinds of earnings benchmarks still exist in the market, and whether there is any changes in recent years. The second part mainly focuses on the meeting or beating managers' forecasting, the unique forecasting in Japan. Because it

is not usual to consider the managers' forecasting as the third kinds of earning benchmarks, this paper provides much more detail statistic analyst in this part comparing with the former two.

As the last kinds of earnings benchmarks, I estimate suspects firms are firm-year just beating/meeting the managers' forecasting. Firstly, I estimate the accrual-based earnings management, which impacts reported earnings in a more immediate and certain manner. In addition, unlike accrual-based earnings management, I also study on the real activities manipulation, which distorts earnings by executing transactions differently. Last, I compare and conclude the three kinds of earnings benchmarks in Japanese market. Consistent with prior studies, I argue that managers still adjust their earning to avoid earnings decreases and losses based on the recently evidences. But in recently, as all knows, the economic in Japan is no longer flourishing as before. Many firms are facing an extremely tough time, so that the most crucial thing is to survival and at least to make some profit. My argument does not imply that the smoother earnings are not existed, but the prevalence of avoiding earnings decreases is not so significant as before. Thus, the argument is formalized in the following hypothesis:

H1: Earnings are managed to avoid earnings decrease, but not significant as avoidance losses.

H2: Earnings are managed to avoid losses.

In part two, I focus on the earnings forecasting realization. The managers claim they seek to meet or beat quarterly earnings benchmarks are to build credibility with capital markets and to maintain or increase their firms' stock prices (Graham et al. 2004). According to the two reasons to expect management of forecasts to sometimes result in earnings that slightly exceed forecasts. First, there may be incremental benefits to beating rather than just meeting analyst forecasts. Second, because earnings outcomes are to some extent uncertain, firm may target small positive rather than zero, earnings surprise to reduce the risk of reporting a negative earnings surprise (Degeorge et al. 1999). Although, the managers' forecasting is not as the same as the analysts' forecasting, actually it attracts much more attention in Japanese market. I investigate the firms which have small positive earnings surprise as beating managers' forecasting, and argue that comparing with the firms have slight negative earnings that just missing the forecasting benchmarks, the firms which beating managers' forecasting should have significant higher discretionary accruals. I formulate my hypotheses as follows:

H3: Earnings are managed to meet or beat managers' forecasting.

H4: The firms with small positive earnings surprise have higher discretionary accruals than the firms with small negative earnings surprise.

H5: The firms with zero earnings surprise have higher discretionary accruals than the

firms with small negative earnings surprise.

Because of the limitation of the database, though the earnings briefings are reported twice or four times in a year during my research period, I do not have every disclosure of earnings briefings in the fiscal year. Only the semi-annual (before 2003), the third quarterly (after 2003) and annual earnings briefings are obtained. Considering that the bulk of earnings management occurs mainly in the last days of each fiscal year for meeting mangers' objectives (Gu et al. 2003), I also argue that the firms should treat the annual report more seriously than the semi-annual/quarterly report. It means the firms prefer realizing the managers' forecasting in the end of fiscal year rather than in the semi/the third quarterly fiscal year. So the next hypothesis is formulated as bellow:

H6: More firms realize the managers' forecasting in the annual report than in the semi-annual/the third quarterly report.

Considering the earnings management strategies, the real activities manipulation can also be taken advantage of a tool to manipulate earnings, so that the suspect firms maybe engage in real activities manipulation at the same time when they already manipulated earnings by accruals. Based on the assuming, next, I focus on the real earnings management based on the suspect fire-year. The next hypothesis is raised as bellow:

H7: The firms with small positive earnings surprise have higher inclination to engage in real activities manipulation than the firms with small negative earnings surprise.

3.4 Sample selection

Data for the samples are obtained from Nikkei-needs. Managers' forecasting data is taken from Nikkei economic electronic databank system. In the first part, the sample I selected for examining the avoiding earnings decreases and loss is from 2001 to 2011, excluding financial institutions. The representation of avoiding earnings decreases is the changes in annual net income (net income in t period minus net income in t-1 period) divided by asset in t-2 period. The final sample contains 34561 observations. The net income in period t scaled by asset in t-1 indicates the avoidance of losses. There are 35338 observations are obtained. As managers' forecasting, the realization of forecasting is be calculated by forecast errors (FERR), that is, actual earnings subtract forecasting earnings in t period divided by asset in t-1. Cause of the limitation of the database, the annual forecasting data is available from 2001 to 2010; the semi-annual/the third quarterly forecasting data is from 2001 to 2009, excluding the financial firms, the firms' fiscal year not in March, singular values and unavailable observations in the regressions.

3.5 Statistical analysis

3.5.1 Analysis on earnings decreases and losses

I start from the examination of the two former earnings benchmarks. To test the statistical significance of avoiding earnings decreases and losses, I followed the approaches of Burgstahler and Dichev (1997) that firstly under the null hypothesis of no earnings management, the distributions of earnings changes, earnings and forecast errors are smooth. Second, I present the statistical test to examine the hypotheses.

Table 1 (Panel A) shows descriptive statistics for the earnings changes variable.

Panel A	Avoidance of earnings decreases					
Year	N	Mean	Std.Dev	25%	50%	75%
2001	2800	0.008	0.159	-0.015	0.002	0.020
2002	2795	-0.000	0.198	-0.023	-0.002	0.014
2003	3081	0.021	0.237	-0.007	0.005	0.025
2004	3209	0.031	0.537	-0.001	0.009	0.027
2005	3255	0.017	0.145	-0.005	0.006	0.023
2006	3294	0.012	0.157	-0.009	0.004	0.021
2007	3329	0.003	0.133	-0.009	0.004	0.019
2008	3352	-0.010	0.111	-0.020	-0.002	0.010
2009	3366	-0.018	0.164	-0.044	-0.014	0.002
2010	3376	0.020	0.096	-0.008	0.008	0.035
2011	2704	0.016	0.083	-0.007	0.006	0.027
Total	34561					

Panel B is the descriptive statistics of earnings. The number of available observations increases per year, excluding 2011. The reason is that the database only updates the data until Mar. 2011, and Mar. is the end of fiscal year of most Japanese firms, so the figure is not increasing in the last year of observation. But obviously, it is already including the majority of listed firms.

Panel B	Avoidance of losses					
Year	N	Mean	Std.Dev	25%	50%	75%
2001	2952	0.009	0.382	0.000	0.016	0.041
2002	3081	0.006	0.166	-0.007	0.011	0.033
2003	3205	0.022	0.175	0.003	0.016	0.040
2004	3274	0.038	0.281	0.009	0.024	0.051
2005	3294	0.038	0.122	0.012	0.029	0.056
2006	3336	0.033	0.316	0.012	0.031	0.060
2007	3359	-0.037	0.089	0.013	0.031	0.058
2008	3365	0.019	0.096	0.006	0.024	0.051
2009	3376	-0.006	0.109	-0.02	0.009	0.030
2010	3384	0.009	0.102	0.002	0.017	0.038
2011	2712	0.022	0.079	0.007	0.022	0.043
Total	35338					

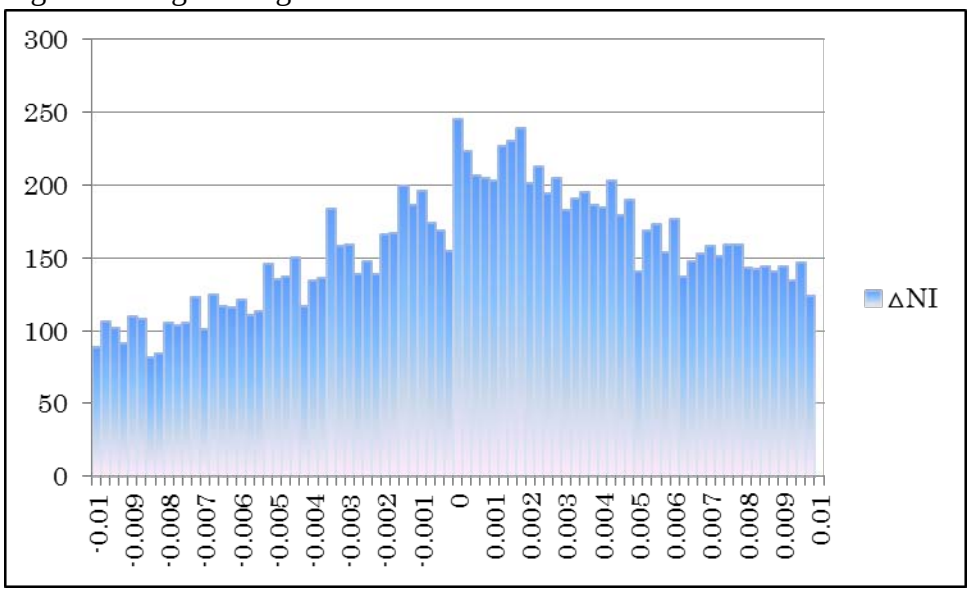
The panel C and D are the descriptive statistics for realization of managers' forecasting in annual or semi-annual report, based on sale, ordinary profits and net income separately. The mean and median values of forecasting realization are primarily, but not exclusively, positive throughout the sample period.

Then I graphical evidence in the histograms of the empirical distributions of scaled earnings changes. Fig.2 is the histogram of the scaled earnings change variable and the histogram interval widths are 0.00025. Each interval is defined to include the lower boundary and exclude the upper boundary. The range of earnings changes is from -0.01 to +0.01. The figure shows a discontinuous distribution of changes in earnings intervals. The distribution displays that earnings changes slightly greater than zero occur much more frequently than would be expected. Moreover, the distribution is abnormal around zero but not extremely significant as the displays of Burgstahler and Dichev (1997) and Shuto (2010, using the Japanese data 1976-2000).

It is said that the firm still try to avoid earnings decreases but not so prevailing. The result is clear from Fig.2 that, avoidance of earnings decreases still exist, but not such significant as before from visual, which consistent with H1.

Panel C	Managers' Forecasting in Annual Report								
	Sale			Ordinary Profit			Net Income		
Year	N	Mean	Std.Dev	N	Mean	Std.Dev	N	Mean	Std.Dev
2001	1958	-0.006	0.078	1956	-0.002	0.017	1957	-0.005	0.087
2002	2061	-0.014	0.061	2059	-0.002	0.016	2061	-0.008	0.025
2003	2171	0.000	0.032	2168	0.001	0.007	2170	-0.001	0.013
2004	2268	0.000	0.073	2267	0.004	0.015	2267	0.000	0.010
2005	2369	0.003	0.058	2369	0.013	0.027	2331	0.001	0.008
2006	2496	0.005	0.040	2466	0.001	0.014	2467	0.000	0.021
2007	2649	0.006	0.082	2637	0.001	0.010	2637	0.000	0.014
2008	2737	-0.001	0.065	2737	0.002	0.133	2737	0.001	0.134
2009	2777	-0.007	0.038	2777	0.000	0.016	2777	-0.002	0.024
2010	2794	-0.013	0.116	2795	0.002	0.035	2794	-0.004	0.057
Total	24280			24231			24198		
Panel D	Managers' Forecasting in Semi-Annual/the third quarterly Report								
	Sale			Ordinary Profit			Net Income		
Year	N	Mean	Std.Dev	N	Mean	Std.Dev	N	Mean	Std.Dev
2001	1925	-0.019	0.046	1923	-0.005	0.017	1925	-0.007	0.020
2002	2032	-0.001	0.039	2030	0.000	0.008	2031	0.000	0.008
2003	2131	0.000	0.020	2131	0.000	0.007	2131	0.000	0.005
2004	2216	0.002	0.017	2216	0.001	0.004	2216	0.001	0.003
2005	2324	0.002	0.019	2324	0.001	0.005	2324	0.001	0.006
2006	2457	0.002	0.016	2457	0.001	0.004	2457	0.001	0.004
2007	2605	0.001	0.018	2604	0.001	0.005	2605	0.000	0.005
2008	2683	-0.001	0.022	2683	0.000	0.006	2683	0.000	0.007
2009	2707	-0.004	0.026	2705	0.000	0.013	2705	-0.001	0.014
Total	21080			21073			21077		

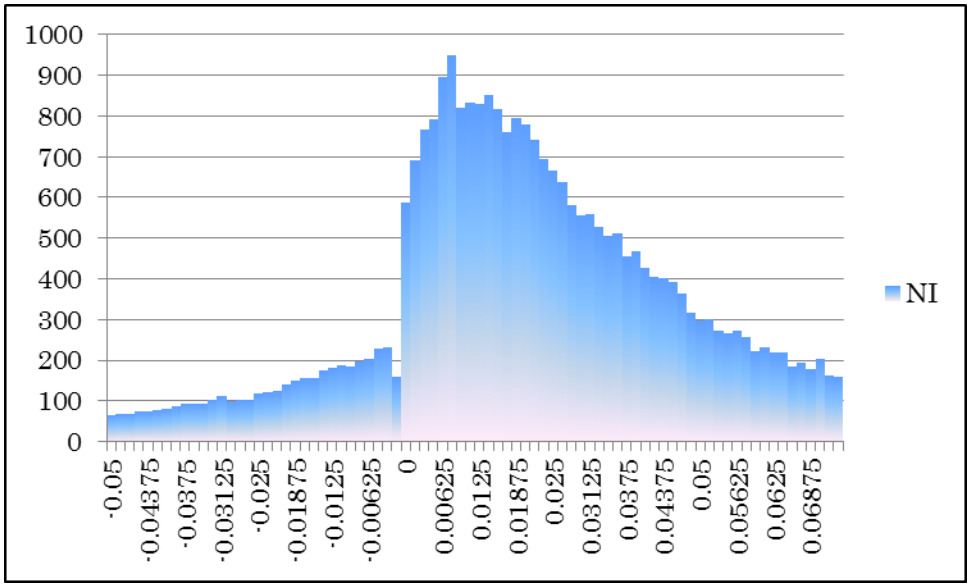
Fig.2. Earnings Change



Changes of net income divided by Asset in last year.
The distribution interval widths are 0.00025.
The range is from -0.01 to +0.01.

Fig.3 shows the empirical distribution of annual net income standard by asset in last period. The width of the histogram is 0.0015625 from -0.05 to +0.075. The histogram shows a single-peaked, bell-shaped distribution with an irregularity near zero which is consistent with earnings management to avoid losses. Earnings slightly less than zero occurs less frequently and the frequency of earnings that slightly greater than zero is extremely higher than expected. That is, there are few firms report slightly loss, and there are too much firms claim the slightly profit. Comparing with the distribution of earnings changes, the phenomenon is much more obviously than the distribution of earnings changes. Consistent with prior studies, from Fig.3, that the strong incentive to avoid losses leads to a strong effect of earnings management in the intervals close to zero relevant to H2.

Fig.3. Earnings



Net income divided by Asset in last year.
The distribution interval widths are 0.0015625.
The range is from -0.05 to +0.075.

The standardized difference for an interval is the difference between the observed and expected number of observations in the interval, standardized by the estimated standard deviation of the difference. Under the null hypothesis, the standardized differences are approximately normal, with a 0 mean and standard deviation of 1. I focus on the standardized differences of two intervals immediately close to zero. The earnings changes intervals are [0, 00025) and [-0.00025, 0); the earnings intervals are [0, 0.0015625) and [-0.0015625, 0). The table 2 (Panel A) is the test of standardized differences of changes in earnings and earnings.

Table 2 (Panel A)

	Tested Intervals		Other Intervals			
	Interval immediately left of 0	Internal immediately right of 0	Average	Mean	Min.	Max.
ΔNI	-3.246***	3.052***	-0.002	-0.040	-2.543	2.313

NI	-13.141***	5.797***	0.006	-0.034	-2.014	2.494

***means significant at 0.01 level.

The findings prove the evidence of irregularity distribution of the histograms above. The standardized differences of the interval immediately to the right and left next to zero of earnings changes and earnings are very significant. Thus, the abnormal distribution around zero apparent in Fig.2 and Fig.3 are statistically significant.

As examining the frequency of earnings management, the distribution of earnings changes and earnings would be approximately symmetric. So the right half of the empirical distribution is largely unaffected by earnings management to avoid earnings decreases and losses by assuming that in the absence of earnings management. The difference between the expected and the observed number reflects the frequency that firms engaged in earnings management. The distribution of earnings changes in Fig.2 would be symmetric around 0.00025, and the distribution of earnings would be symmetric around 0.009375 in Fig.3. Table 2 (Panel B) shows the result of the estimates about the frequency of firms engaged in earnings management.

Table 2 (Panel B)

ΔNI		NI		Difference/Total (%)		Difference/Expected No. (%)	
Observed No.	Expected No.	Observed No.	Expected No.	ΔNI	NI	ΔNI	NI
323	430	390	1655	3.09	3.58	24.88	76.44
696	838	822	3336	4.16	7.11	17.18	75.36
1413	1735	1570	6486	9.34	13.91	18.56	75.79

Earnings changes (ΔNI): The three intervals of increasing width near zero are (-0.0005, 0), (-0.001, 0) and (-0.002, 0). The estimates for the three increasingly broad intervals are (0.00025, 0.00075), (0.00025, 0.00125) and (0.00025, 0.00225).
Earnings (NI): The three intervals of increasing width near zero are (-0.003125, 0), (-0.00625, 0) and (-0.0125, 0). The estimates for the three increasingly broad intervals are (0.009375, 0.0125), (0.009375, 0.0140625) and (0.009375, 0.0203125).

According to the finding in Table 2, there are 17% to 25% firms engaged into earnings management to avoid earnings decreases. As the frequency of earnings management to avoid losses, the percentage is from 75% to 76%. It speaks a directly to the H2 that avoidance of losses is commonplace. In sum, based on the same estimation, the avoidance of losses is much more prevalence than avoiding earnings decreases in recent years, which supported H1 that earnings are managed to avoid earnings decrease, but not significant as avoidance losses.

3.5.1.1 Examining the way to avoid losses

Further, based on the finding that avoiding losses are extremely significant, I focus on avoidance of losses because the evidence above shows a more concentrated effect for management to avoid losses than for management to avoid earnings decreases. I focus on three subjects: working capital accruals, extraordinary item and operating cash flow. The definitions of these subjects are as follows:

Working Capital Accruals = Notes and Accounts Receivable-Trade + Inventories + Notes and Accounts Payable-Trade + Accrued Consumption Taxes;

Extraordinary Items = Extraordinary Income - Extraordinary Loss;

CFO = Operating cash flow

I divided the firm-year based on these subjects into several portfolios. The portfolio boundaries are defined relative to 0: the first portfolio right of 0 consists of the 1000 smallest positive earnings observations; the second portfolio right of zero consists of the 1000 next smallest positive earnings, and so on. The Fig.4, Fig.5 and Fig.6 show the percentage distribution of these three subjects.

Fig.4. Working capital accruals

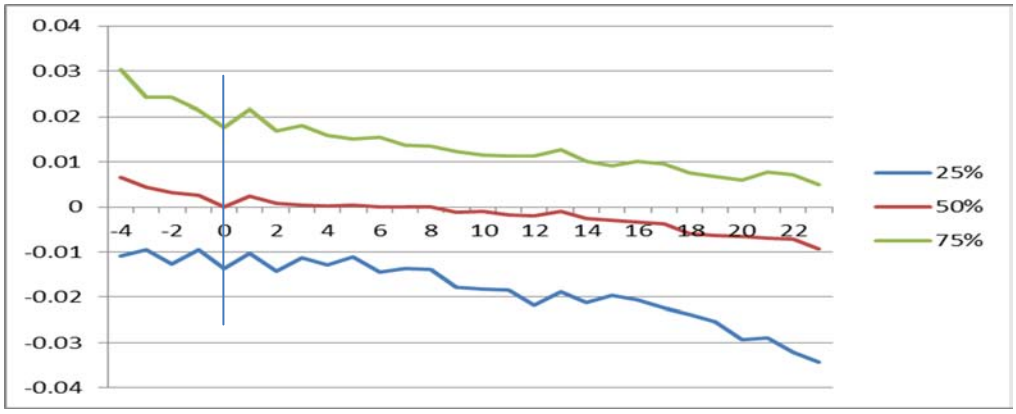


Fig.5. Extraordinary items

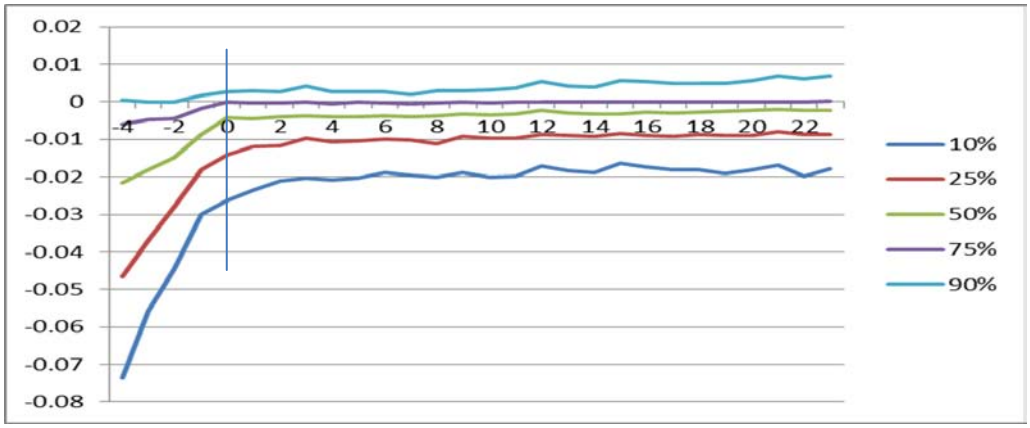
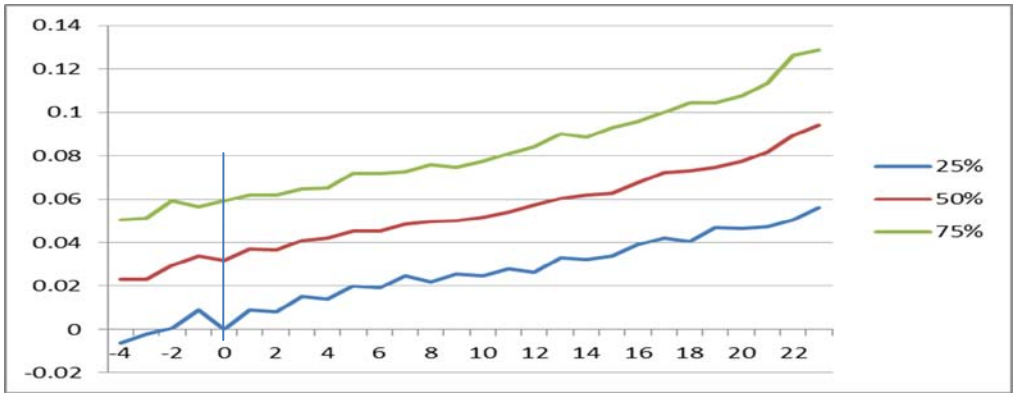


Fig.6. CFO



The portfolio boundaries are defined relative to 0: the first portfolio right of 0 consists of the 1000 smallest positive earnings observations; the second portfolio right of zero consists of the 1000 next smallest positive earnings, and so on.

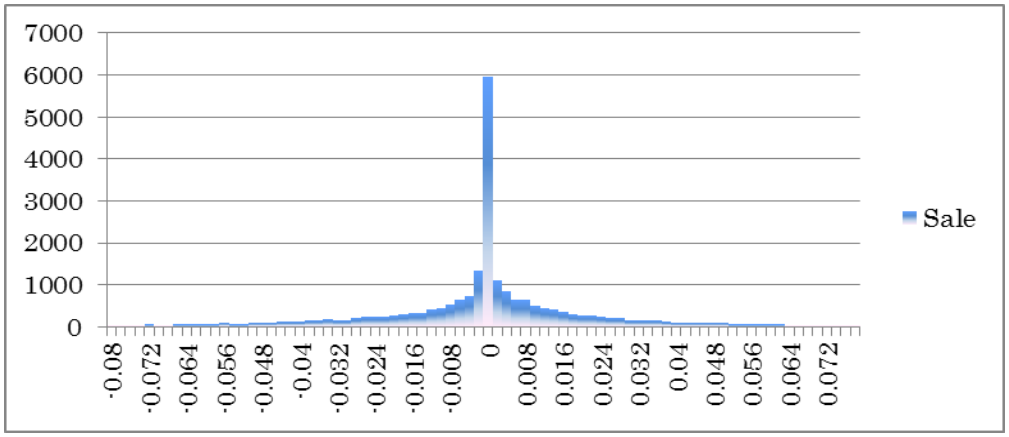
As showing in the Fig.4, each percentage of working capital accruals present the increasing trend of the portfolio that just at the right side near 0. That is, the firms just

at the right side of 0 may manipulate their working capital to avoid losses. From Fig.5, it is shown that at the left side of 0, except the 90% line, the other lines are negative. It deserves to be concerned that for the 10% line, the extraordinary item is extremely negative, it suggests firms already facing a loss without possibility to reverse, may tend to choose to "take a big bath". Fig.6 shows the distribution of CFO; there is no obviously difference among the 3 lines. Consistent with the prior studies the CFO may not be manipulated in order to avoid losses.

3.5.2 Analysis on realization of managers' forecasting

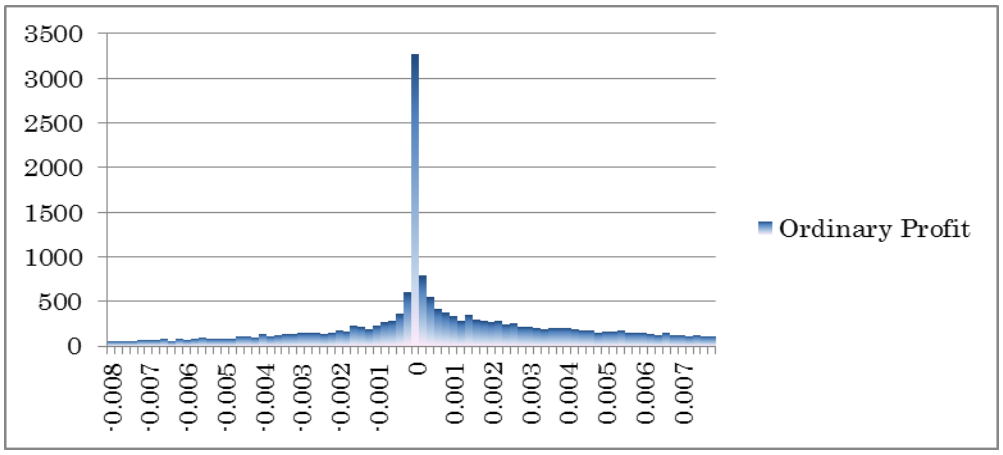
As mentioned before, I treat the managers' forecasting disclosed in earnings briefing as the third kind of earnings benchmarks. Then, I begin to test H3 firstly with a similar distribution of earnings changes and earnings. The earnings forecasting based on annual forecast errors of sales, ordinary income and net income are displayed in Fig.7, Fig.8 and Fig.9.

Fig.7. Sale



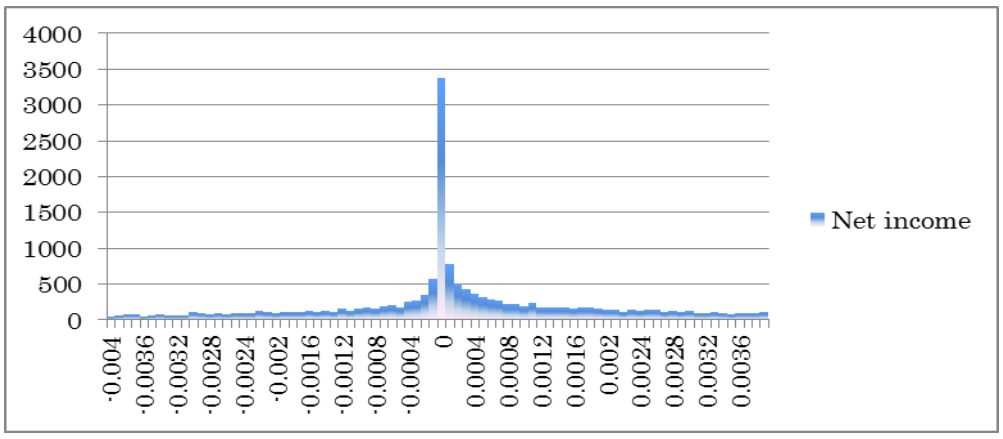
Sales divided by Asset in last year. The distribution interval widths are 0.002. The range is from -0.08 to +0.08.

Fig.8. Ordinary Income



Sales divided by Asset in last year. The distribution interval widths are 0.0002. The range is from -0.008 to +0.008.

Fig.9. Net Income



Sales divided by Asset in last year. The distribution interval widths are 0.0001. The range is from -0.04 to +0.04.

From the histograms, it is clear that all the three kinds of FERRs are single peak distribution. There are extremely large numbers of firms' FERRs are spread at just the right side of zero, including equal to zero. That is, based on the managers' forecasting realization, there are too many firms just meeting or beating the forecasting earnings as I assumed in H3 visually. The table 3 shows the standardize differences test of earning realization about sales, ordinary income and net income respectively, focus on the intervals immediately close to zero.

Table 3

	Sales	Ordinary Profit	Net Income
Interval immediately left of 0	-41.161***	-33.721***	-35.945***
Interval immediately right of 0	67.539***	47.070***	49.249***

***means significant at 0.01 level.

From the findings, it is clear that the FERRs are significant discontinuous around zero which supports H3. There are two explanations for this phenomenon. First, the managers have plenty of internal information of the firm as an insider, thus the managers' forecasting made by themselves are more exactly and with less bias. Second, according to the prior studies (Tanaka, 2004; Ota, 2006), the stock price would be effected immediately even there is a small negative earnings surprise, thus the manager would refer to manage the earnings to realize the forecast. The evidence shows that in Japan, managers' forecasting plays a important role as the earnings benchmark.

3.5.2.1 Accrual-based earnings management of managers' forecasting

With the considering of the second assuming above, I continue to investigate the FERRs by divided the firms into three groups around zero, to try to clarify the explanation of the abnormal distribution. As mentioned there are three forecasts subjects: sales, ordinary income and net income in the earnings briefing, so the FERRs are corresponding to the three forecasting values respectively. The first group, the group1, is the firms only with slight positive FERRs containing 1000 firms. I organize the group1 as followed: 1) ranked the FERR of sales, ordinary income and net income separately. 2) Excluding the firms with zero FERRs, count 1000 firm from

zero to positive direction. This group is the firms that present the firms just have slight positive earnings surprises. Say, the group1 is the group that just beating the managers' forecasting. The next group is the firms with zero annual earnings surprises. That is the firms are just meeting the forecasting and the FERR is right equal to zero. Then, the last group is divided following the same way with group 1, but count 1000 firms from zero to negative direction instead. The group presents the firms just missing the mangers' forecast with slight negative FERRs.

For testing the H4, first, I examine the discretionary accruals among the three groups to understand that if the firms just meeting or bearing the managers' forecast have relatively higher discretionary accruals and relatively lower discretionary accruals for firms just failure to realize the managers' forecast. I proxy reporting management by discretionary accruals that estimated from the following two accrual-based earnings management models separately:

Modified Jones Model:

$$\text{Total Accruals}_t/A_{t-1}=\alpha+\beta_1 1/A_{t-1}+\beta_2\ (\Delta REV_t-\Delta REC_t)/A_{t-1}+\beta_3 PPE_t/A_{t-1}+\varepsilon_t$$

Performance Matched Model regression-based approach (Kothari et al, 2005):

$$\text{Total Accruals}_t/A_{t-1}=\alpha+\beta_1 1/A_{t-1}+\beta_2\ (\Delta REV_t-\Delta REC_t)/A_{t-1}+\beta_3 PPE_t/A_{t-1}+$$

$\beta_4 ROA_{t-1}+\varepsilon_t$ [1]

Table 4 (Panel A) is the descriptive statistics of discretionary accrual measured by the cross-sectional regression models above, controlled the year and industry effects. Panel B to D show the descriptive statistics of the three suspected groups respectively. A closer look at the result shown in the table, it is quite clear that the highest discretionary accruals in the all sample firms is also appear in group1, that the group with small positive FERRs; and turn to the smallest discretionary accruals which reflect the firms maybe take a big-bath do not exist in any of the three groups. That is, at the certain extent, the group 1 firms have higher possibility than any other firms to engage in earnings management by accrual-based manipulation.

Table 4 (Panel A)

DA	N	Mean	Std. Dev.	Min.	Max.
Modified Jones	10434	0.022	0.067	-1.524	2.583
M-Jones with ROA_{t-1}	10434	0.027	0.067	-1.527	2.524

Table 4 (Panel B) Group 1

(Panel B) Group 1					
DA	N	Mean	Std. Dev.	Min.	Max.
Modified Jones	1000	0.031	0.100	-0.319	2.583
M-Jones with ROA_{t-1}	1000	0.039	0.099	-0.295	2.524
(Panel C) Group 2					
DA	N	Mean	Std. Dev.	Min.	Max.
Modified Jones	577	.022	.064	-0.484	0.517
M-Jones with	577	.031	.065	-0.456	0.505

[1] Kothari et al. (2005) indicate the performance matched method is the best way to eliminate the bias of estimation, but as the suspected firms are the firms just beating the managers' forecasting, it is likely that firms with the nearest ROA also has same motivations, so I only use the ROA approached method.

ROA_{t-1}					
(Panel D) Group 3					
DA	N	Mean	Std. Dev.	Min.	Max.
Modified Jones	1000	0.019	0.055	-0.300	0.437
M-Jones with ROA_{t-1}	1000	0.027	0.057	-0.256	0.499

To test for differences in the accrual-based earnings management among the three groups: small earnings surprises firms, just meeting the forecasts firms and slight negative earnings surprises firms, then, I conduct a regression controlling the variables that would affect the differences between every two groups. Specifically, I estimate the following year and industry fixed-effects model on discretionary accruals with the firms' FERRs near zero. As mentioned before, the group 1 contains 1000 firms with slight positive FERRs. The group 2 is the firms with zero FERRs, as realization of forecasting net income, there are 577 observations; 453 samples just meet the forecasting ordinary income; and 575 firms meet the forecasting sales. The group 3 also contains 1000 observation with small negative FERRs. The regression is examining the earnings management by discretionary accruals between group 1 and group 3. Then, regress the same model with group 2 and group 3 again. There is the regression model as below:

$$DA=\alpha+\beta_1 Ylarger0+\beta_2 New+\beta_3 Lnasset+\beta_4 Lev+\beta_5 CFO+\beta_6 Loss+\beta_7 Mtb+\varepsilon$$

DA is the discretionary accruals calculated respectively from the two cross-sectional regression models above.

Ylarger0 presents the group 1-firms with small positive FERRs. In the first regression, it set to 1 if the firm belongs to group1, and 0 otherwise. In the second regression, it set to 1 if the firm belongs to group2, and 0 otherwise.

New is the dummy variable set to 1 if the firm is newly listed within 2 year, and 0 otherwise.

Lnasset is the logarithm of asset.

Lev is liabilities divided by asset.

CFO is the cash flow divided by asset in t-1.

Loss is set to 1 if loss, and 0 otherwise.

Mtb is the market to book value.

Table 5 presents the correlations among regression variables. I predict the coefficient of Ylarger0 should be positive. It means the firms just beating the forecasts have greater motivation to engage in earnings management than the firms just fail to realize the managers' forecasting. As the coefficient of New, it is expected to be positive. The newly listed firms have relatively higher discretionary accruals than other firms. Lev should be positive to discretionary accruals. According to prior study (Dechow et al. 1995), the coefficient of CFO should be negative to discretionary accruals. The coefficient of Loss should be negative that if the firm is facing a loss irreversible, it would not engage in upward earnings management, consistent with prior study (Brown, 2001). Mtb should have positive relationship with discretionary accruals (Matsumoto, 2002).

Table 6 provides summary statistics for the first regressions (regression on group 1 and group 3) with robustness test. As shown in the table, the coefficient of group1, firms with slight positive FERRs of net income in annual report is positive and statistically significant at the 0.01 level. With similarly regression on annual ordinary income and sales of group 1 and group 3, the coefficient of realization forecasting on ordinary income and sales are not significant. The result shows that the FERRs of ordinary income and sales are not related with discretionary accruals; and the relation between discretionary accruals and net income is significant. It makes sense the sales are not so correlate with discretionary accruals as net income. The result consistent with the study based on earnings changes and earnings above, the firms pay more attention on earnings which present as net income. The other control variables mostly conform to expect coefficients. Table 7 is the test between group 2 and group 3, examining on just meeting forecasting and small negative earnings surprise. The result is shown in table 7, but not as beating earnings forecasting, there is no significant differences between group 2 and group 3. That is, the empirical evidence does not meet the H5.

Table 5

Correlation	M-Jones DA	M-Jones with ROA_{t-1}	Ynilarger 0	New	Lnasset	Lev	CFO	Loss	Mtb
M-Jones DA	1.0000								
M-Jones with ROA_{t-1}	0.9844	1.0000							
Ynilarger0	0.0434	0.0551	1.0000						
New	0.0490	0.0261	-0.0209	1.0000					
Lnasset	0.0110	0.0084	0.0337	-0.1070	1.0000				
Lev	-0.0408	-0.0151	0.0552	0.0400	0.1622	1.0000			
CFO	-0.6465	-0.7100	-0.0617	-0.0060	0.0870	-0.1895	1.0000		
Loss	-0.2593	-0.2097	-0.0330	-0.0436	-0.1079	0.1956	-0.2536	1.0000	
Mtb	0.0238	-0.0300	-0.0036	0.0051	0.0137	0.0472	0.0413	0.0060	1.0000

Table 6 Group 1 and Group 3

	Mergers' forecasting subjects					
	Net Income		Ordinary Income		Sale	
	MJ-DA	MJ-ROA_{t-1}	MJ-DA	MJ-ROA_{t-1}	MJ-DA	MJ-ROA_{t-1}
ynilarger0	0.003**	0.003**				
	(1.98)	(2.06)				
yoilarger0			-0.002	-0.002		

			(-1.07)	(-1.20)		
ysalelarger0					0.002	0.002
					(0.88)	(1.13)
new	0.017***	0.010**	0.027**	0.015	0.020	0.013
	(4.09)	(2.47)	(2.06)	(1.26)	(1.32)	(1.03)
lnasset	0.004***	0.003***	0.002*	0.001	0.003**	0.002*
	(4.37)	(3.70)	(1.70)	(1.48)	(2.18)	(1.65)
lev	-0.037***	-0.022***	-0.032***	-0.020***	-0.036***	-0.024**
	(-6.80)	(-4.62)	(-4.40)	(-3.00)	(-3.36)	(-2.52)
cfo	-0.939***	-0.943***	-0.756***	-0.790***	-0.754***	-0.789***
	(-20.34)	(-28.86)	(-15.79)	(-18.44)	(-13.01)	(-15.37)
loss	-0.055***	-0.054***	-0.054***	-0.051***	-0.064***	-0.061***
	(-22.82)	(-22.52)	(-22.61)	(-22.21)	(-21.20)	(-21.28)
mtb	0.001*	0.000*	0.001	0.001	0.002	0.002
	(1.94)	(1.72)	(1.55)	(1.39)	(1.59)	(1.33)
_cons	0.061***	0.067***	0.073***	0.075***	0.053***	0.064***
	(6.38)	(7.78)	(5.78)	(6.43)	(2.97)	(4.14)
Year and industry effects are fixed						
N	2000	2000	2000	2000	2000	2000
R^2	0.748	0.744	0.685	0.697	0.627	0.635

T- statistics in parentheses is calculated based on the heterogeneous S.E., * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 7
Group 2 and Group 3

	(1) M-Jones ROA_{t-1} Net Income	(2) M-Jones ROA_{t-1} Ordinary Income	(3) M-Jones ROA_{t-1} Sale
Yniequal0	0.003		
	(1.30)		
Yoiequal0		-0.002	
		(-0.76)	
Ysaleequal0			0.002
			(0.74)
New	0.019	0.009	-0.001
	(1.33)	(0.48)	(-0.08)
Lnasset	0.003***	0.003**	0.004***
	(3.63)	(2.44)	(3.83)
Lev	-0.008	-0.018	-0.014
	(-1.05)	(-1.59)	(-1.47)
CFO	-0.786***	-0.886***	-0.915***
	(-15.41)	(-52.65)	(-15.20)
Loss	-0.051***	-0.054***	-0.064***
	(-17.86)	(-16.99)	(-15.15)
Mtb	0.000	0.002***	0.001
	(0.45)	(4.01)	(0.44)
_cons	0.042**	0.049***	0.054***
	(3.71)	(3.07)	(3.48)
Year and industry effects are fixed			
N	1577	1453	1575
R^2	0.633	0.885	0.810

T- statistics in parentheses is calculated based on the heterogeneous S.E., * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

To test H6, I initially consider proxy for forecast realization. I focus on the realization of forecasting net income in annual report and semi-annual/the third quarterly report. I use forecasting net income scalded actual net income legalized in annual report as an approach, that if more firms realize the forecasting in annual report than semi-annual/the third quarterly report, the ratio of annual report should be

closer to 1. Table 8 shows the result of t-test of forecasting value/actual value in annual and semi-annual/the third quarterly report.

Table 8
Paired t-test

Variable	N	Mean	Std. Err.	Std. Dev	95% Conf. Interval	
f/a NI semi-annual/the third quarterly	12494	.991	.001	.093	.990	.993
f/a NI annual	12494	.997	.001	.086	.996	.999
diff	12494	-.006	.001	.123	-.008	-.004
Mean (diff)=mean (f/a NI semi-annual/the third quarterly report-f/a NI annual report)						
t=-5.3160						
Ho: mean(diff) = 0						

The result shows that the ratio is much closer to 1 in annual report than in semi-annual report. It means the firms pay more attention to realize the forecasting in the annual report, which proves H6.

3.5.2.2 Real activities earnings management of managers' forecasting

After the examination which based on accruals earning management, subsequent studies using the same metrics with prior research (Roychowdhury, 2006), I also estimate the following manipulation of real activities: increasing earnings by accelerating of the timing of sales through increased price discounts or more lenient credit terms, reducing the cost of goods sold by over producing inventory, and cutting discretionary expenditures, including R&D, advertising, and selling, general, and administrative(SG&A)expenditures. The former one is measured by the abnormal level of CFO, the second is estimated by the abnormal level of production costs, the last by the abnormal level of discretionary expenditures. The following study is using

these metrics to capture real activities manipulation.

I express normal level of CFO as a linear function of sales and change in sales (Roychowdhury, 2006), and run the following cross-sectional regression for each industry and year:

$$CFO_t/A_{t-1}=\alpha+\beta_1 1/A_{t-1}+\beta_2 Sales_t/A_{t-1}+\beta_3 \triangle Sales_t/A_{t-1}+\varepsilon_{it}$$

Abnormal CFO is actual CFO minus the normal level of CFO calculated using the estimated coefficient from the regression above. At-1 is the total assets in year t-1; $Sales_t$ is the sales in year t; and $\triangle Sales_t$ is the change in sales from year t-1 to t. The residual measured by upper regression represents the abnormal CFO.

I estimate the normal level of production costs following Roychowdhury (2006):

$$PROD_t/A_{t-1}=\alpha+\beta_1 1/A_{t-1}+\beta_2 Sales_t/A_{t-1}+\beta_3 \triangle Sales_t/A_{t-1}+\beta_3 \triangle Sales_{t-1}/A_{t-1}+\varepsilon_{it}$$

where $PROD_t$ is the sum of the cost of goods sold in year t and the change in inventory from t-1 to t. $\triangle Sales_{t-1}$ is the change in sales from year t-2 to t-1. The abnormal level of production costs is measured as the estimated residual from the regression above. The higher residual, the larger is the amount of inventory overproduction, and the greater is the increase in reported earnings through reducing the cost of goods sold.

Also following Roychowdhury (2006), I measure the normal level of discretionary

expenditures using the following equation:

$DISX_t/A_{t-1}=\alpha+\beta_1 1/A_{t-1}+\beta_2 Sales_{t-1}/A_{t-1}+\varepsilon_{it}$

$DISX_t$ is the discretionary expenditures (the sum of R&D, advertising, and SG&A expenditures) in year t. I estimate all the above regressions by cross-sectional for industry-year with at least 7 observations, the total industries decreasing from 33 industries to 31. I aggregate the three kinds of real earnings manipulation metrics into one proxy, RM, as the sum of the standardized variables all of them three, and report results corresponding to this proxy as well. Table9 reports the descriptive statistics of the variables estimated as the real earnings management.

Table 9

Variable	Obs.	Mean	Std. Dev.	Min	Max
Ab_CFO	24680	-0.039	0.107	-3.620	4.166
Ab_PROD	21031	0.126	0.225	-1.386	11.717
Ab_DISX	24680	-0.036	0.102	-0.704	2.453
RM	21031	0.048	0.143	-1.962	9.188

Consistent with prior study (Zang, 2012) that managers probably use multiple techniques at the same time, I suppose the accrual-based and real activities earnings management may occur simultaneously to achieve the managers' forecasting.

The following equations using the groups divided before as the suspect sample to estimate the real earnings management to realize the managers' forecasting:

$RM=\alpha+\beta_1 Ylarger0+\beta_2 Mtb+\beta_3 Size+\beta_4 ROA+\beta_4 \triangle GDP+\varepsilon$

RM is the proxies measuring the real activities manipulation, that is abnormal CFO, abnormal production cost, abnormal discretionary expenditures respectively, and RM by taking their sum. Mtb is the market-to-book ratio to capture firms' growth opportunities, that Barth et al. (1999) and Skinner and Sloan (2002) show that the incentive to report earnings increases is increasing with firms' growth opportunities. Size is the industry-adjusted log value of total assets to control for relative firm size in industry. ROA used to control for the firm performance. △GDP is the change of GDP from year t-1 to year t. Following Cohen et al. (2008), I include △GDP as a proxy for real economic activity to control for the effect of economic activity on earnings management and fixed the year effect.

Table 10
Panel A

	RM	Ab_CFO	Ab_PROD	Ab_DISX
nilarger0	0.002	-0.004	0.004	0.001
	(0.49)	(-1.36)	(1.1)	(0.43)
mtb	-0.000	0.001*	-0.002***	0.001
	(-0.61)	(1.93)	(-3.38)	(1.17)
size	0.003	-0.002**	0.007**	0.001
	(1.58)	(2.05)	(2.05)	(0.87)
roa	0.271***	0.393***	-0.071	0.054*
	(3.5)	(8.03)	(-0.81)	(1.85)
gdp	5.08E-06***	2.03E-06***	-1.09E-06***	-1.15E-06***
	(5.7)	(6.51)	(-5.49)	(-4.82)
R^2	0.220	0.055	0.098	0.155
obs.	2000	2000	1895	2000

Panel B

	RM		RM
oilarger0	-0.007*	salelarger0	0.007*

	(-1.81)		(1.81)
mtb	-0.001*	mtb	0.002
	(-1.8)		(0.73)
size	0.003	size	0.002
	(1.32)		(0.98)
roa	0.227**	roa	0.075
	(2.24)		(0.91)
gdp	5.87E-06***	gdp	5.06E-06***
	(7.32)		(7.15)
R^2	0.247		0.166
obs.	2000		2000

*,**,*** means significance at 10%, 5%, 1% level.

Table 10 reports the summary statistics for the regressions (regression on group 1 and group 3) with robustness test. I assume the managers' forecasting of net income as the most important subject to present firms' earnings, that consist with ordinary income and extraordinary income. The regressions are estimated on the realization of three forecast subjects separately. There are no significant correlations between group1 and group3 of real activities manipulation that divided on realization of net income. The three proxies of real earnings management are also not significant. As the other two subjects of managers' forecast, the correlation on ordinary income between group1 and group3 are slightly negative significant. The correlation on sales of the two groups is slightly positive significant. That is, the group1, which with small positive FERRs have lower tendency engage to real earnings management to realize the forecasting ordinary income, which is opposite with my assumption. About the realization of forecasting sales, the group1 firms show higher inclination to apply real activities than group3. In generally speaking, the evidence of engaged in real earnings management between the suspect firms is not significant. Say, the firms that just beating the managers' forecasting do not have relatively higher inclination to use real

earnings management. The results do not support the H7. It means the two metrics of earnings management do not existed simultaneously in suspect firms, and group1 firms prefer to apply accrual-based earnings management than the real activities.

Considering about the relation between accrual-based and real earnings management, I also examine the relation using the flowing regression:

$$DA= \alpha +\beta_1 RM +\beta_2 RM\_Ylarger0 +\beta_3 MTB +\beta_4 SIZE +\varepsilon$$

where DA is the discretionary accruals estimated by Modified-Jones Model with $ROA_{t-1,}$ and I also divided the DA into positive and negative; RM is the proxy of real earnings management. RM_Ylarger0 is the intersection variable which the slope coefficient reflects whether the relationship between DA and RM are particularly strong in suspect firms. MTB is the market to book value and SIZE presents the log value of asset.

Table 11

	Raw_DA	Positive_DA	Negative_DA
RM	-0.156***	-0.121***	-0.026
	(-7.05)	(-5.22)	(-1.54)
RM_Ylarger0	-0.035	-0.052*	-0.043*
	(-1.43)	(-1.78)	(-1.73)
mtb	-0.000***	-0.000	-0.001***
	(-3.03)	(-0.88)	(-3.11)
size	0.002***	-0.004***	0.006***
	(2.65)	(-5.28)	(3.93)
R^2	0.144	0.123	0.048
obs.	9431	7209	2402

*,**,*** means significance at 10%, 5%, 1% level.

Table11 reports the result based on the regression above. The finding shows that the negative relationship between DA (including raw value, positive and negative DA) and RM are consistently significant. Further, concerning the coefficient of intersection variable between RM and suspect firm dummy, it is shown that the relationship between DA and RM in these firms is particularly strong. Additionally, the two earnings management strategies, accrual-based and real activities manipulation are used as substitutes.

4 Empirical results

From the analyst above, it is clear that the avoidance of earnings decreases and losses are still existence and prevalence in Japan. According to the distributions of earnings changes and earnings, visual inspection mere strongly confirms the prediction that earnings changes and earnings slightly greater than zero occur more frequently than would be expected. Then the significant of the regularity near zero is confirmed by the statistical tests, that there are too many firms report small positive earnings, and too less firms report with slight negative earnings exercise. The evidence suggests that 17% to 25% of the firms with small earnings decreases exercise discretion to report earnings increases. Similarly, 75% to 76% of the firms with small negative earnings exercise discretion to report positive earnings. But comparing with these two kinds of earnings benchmarks, avoiding losses is more common than avoiding earnings decreases.

Then I focus on avoidance of losses because the evidence from avoidance of losses

shows a more concentrated effect for management to avoid losses than fore management to avoid earnings decreases. I present three types of subjects about the manipulation of earnings to avoid losses. The three subjects are: working capital accrual, extraordinary items and operation cash flow. The evidence shows in working capital accrual indicate that the firms with slight positive earnings maybe manipulate the working capital to avoid losses. The evidence based on extraordinary items show that firms which already facing a heavy loss without possibility to reverse in the fiscal year, may tend to “take a big bath”. The operation cash flow shows no obviously relation with avoidance of losses.

The paper pay more attention on the third kind of earnings benchmarks than former two, because the third one-managers’ forecasting is so different from other countries. It is the special data in Japanese market and convenient to be gotten by the investors and public, so the last sections are mainly on the detailed analysis of managers’ forecasting. As the beginning of the research on managers’ forecasting, I focus on the distributions of earnings surprises as former benchmarks. The distributions of earnings surprises contain a single- peaked, unusually high frequency of zero and small positive surprises like the former benchmarks. Next, I employ discretionary accruals estimated by two accrual-based models as the proxy for earnings management to detect the existing of earnings management to realize managers’ forecasting. The analyst about realization of managers’ forecasting is classified the firms in three groups which around zero. The evidences show that the firms with small positive FERRs have significant positive coefficient with discretionary accruals

than firms with small negative FERRs. In another word, the firms with slight positive FERRs engaged in earnings management more than the firms with slight negative earnings surprises.

Next, based on the different time of disclosure, I examine the realization of forecasting in annual and semi-annual report. The findings suggest that the firms care more about the annual report than semi-annual report and there are more firms achieve the forecasting in the second half of the year.

At last, I try to classify if the firms near zero earning surprises also engage in real earnings management to realize the forecasting and the relation between accrual –based and real earnings management. The examination of real earnings management shows that the firms with slight positive earnings surprises do not engage in real activities to realize the manager' forecasting, comparing with the firms just missing the forecast. So it infers that the firms have much inclination to realize the forecasting by accrual-based earnings management than the real activities. On the next examination based on all firms' samples, the evidence shows that the accrual-based and real earnings management as the two kinds of strategies are used as substitutes, that consistent with prior studies (Barton, 2001; Pincus and Rajgopal, 2002).

5 Conclusions and future research

I examine the three kinds of benchmarks in Japanese market. The evidence shows that firms avoid to earnings decreases and losses. And in recent years, comparing with the prior study, the phenomenon of avoiding earnings decreases is significant but not

such significant as avoiding loss. As one of the earning benchmarks, firms still try their best to avoid loss. To detect the third kind of earnings benchmarks, the managers' forecasting is unique mandatory published forecasting with a long history and easily to be gotten. So, I assume that in Japan, the public treats the managers' forecasting as the third kinds of earnings benchmarks, as similar as analysis forecasting in other countries. I predict the meeting or beating managers' forecast management via comparison of three groups just equal to zero or nearby zero. The three groups present the firms with zero FERRs, small positive FERRs and small negative FERRs. The regression based on the discretionary accruals that small positive earnings surprises are more common than small negative earnings surprises. But within the comparison between the zero FERRs firms and small negative earnings surprises firms, there are no statistical significant differences. More importantly, I focus on the comparison between annual forecasting realization and semi-annual forecasting realization. The result shows more firms realize the forecasting in the annual report than the semi-report, that indicate the firms maybe treat the annual report more seriously than semi-annual report. On the examination of real earnings management, the suspect firms did not engage in realizing the forecasting through real earnings management. However, based on the full sample, I find these two ways are substitute.

In future research, I continuously study on the earnings management based on the different kinds of benchmarks. In this study, I do not compare the frequencies of three earnings management based on the benchmarks. So, the comparison of different earnings benchmarks could be the coming issues. Moreover, as mentioned before, the

earnings briefings allowed to be revised several times in a year, so if the data is available, I could study on the revise of the forecasting earnings to clarify if the managers have motivations to modify their forecasting. Although, the result does not show the firms with slight positive earnings surprises engage more in real earnings management than other firms, but the trade-off between accrual-based and real activities is also existing and becoming a hot issue. There is rare research based on Asia countries till now, so it is also interesting to study on this topic considering the different costs by the methods.

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